

ON THE SHRIKE *LANIUS TEPHRONOTUS* (VIGORS), WITH  
REMARKS ON THE *ERYTHRONOTUS* AND *TRICOLOR*  
GROUPS OF *LANIUS SCHACH* LINNE, AND THEIR HYBRIDS.

BY

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(With a map)

S Y N O P S I S

An attempt is made to analyse and correlate the informations that had been recorded and that is under investigation by the writer, regarding *Lanius tephronotus*, with a view to determining its systematic status. Evidence is given of the fact that both *L. tephronotus* and *L. schach* breed in Kumaon and Garhwal, and that they do not intergrade. The question of type-locality of *L. tephronotus* is also discussed. It is shown that *L. tephronotus* should be considered specifically distinct from *L. schach*. An account of each subspecies of *L. tephronotus* and of the *erythronotus* and the tricolor groups of *L. schach* is given mainly in relation to distinctive characters, measurements, material examined, moult, breeding and range. It is shown with the help of a comprehensive hybrid index that *L. schach erythronotus* and *L. s. tricolor* hybridize in a vast area that includes Uttar Pradesh (the United Provinces), Bihar, Madhya Pradesh (Central Provinces) etc., and that *Collurio nigriceps* Franklin is nothing but one such intermediate bird.

I N T R O D U C T I O N

Since the publication of Stuart Baker's Fauna of British India—Birds, Vol. 2 in 1924, there has been some controversy among ornithologists regarding the systematic status of *Collurio tephronotus* Vigors, *C. erythronotus* Vigors and *C. tricolor* Hodgson. Baker (op. cit., pp. 292-298) treated them as three distinct species. He used *nigriceps* Franklin for *tricolor*, and placed *erythronotus* as a race of *Lanius schach*. Whistler and Kinnear 1933: pp. 334-337, put them in two different species—*tricolor* and *nigriceps* as races of *Lanius nastus* Scopoli, and the other two as races of *L. schach*. This arrangement was subsequently followed by the British Museum workers, as well as by Oliveer (1944). Dunajewski (1939) in a critical review, treated *tephronotus* as a distinct species, and *tricolor* and *erythronotus* as races of *L. schach*. The last action was, however, hinted at by Meinertzhagen (1927).

Recently I had the opportunity to examine the excellent collection of birds from India made by Dr. Walter Koelz, deposited in the American Museum of Natural History. I examined the question of *tephronotus-erythronotus-tricolor* afresh with the help of the Koelz material supplemented by the materials of the American Museum of Natural History, Museum of Zoology of the University of Michigan, British Museum (Natural History), and the Zoological Survey of India. In all I examined 375 specimens.

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<sup>1</sup> Now in the Zoological Survey of India, Indian Museum, Calcutta.

I am indebted to the authorities of these institutions for their kind coöperation, and to Dr. Koelz for permitting me to study his collection. I am deeply grateful to Dr. Ernst Mayr for much help and his continued interest in this work.

*Measurements*:—Only the measurements of birds in fresh or slightly worn plumage are given in this paper.

The bill is measured from the skull.

### **Lanius tephronotus** (Vigors)

*Lanius tephronotus* must be regarded as a distinct species from *L. schach* (containing *erythronotus*). They both have been found breeding in the same or adjacent places in Kumaon (specimens in Koelz collection!), and not one specimen in the fine series show any sign of intergradation between them, although Ticehurst (1926a) said that he had seen all gradations between them in the western Himalayas. The main differences between *tephronotus* and *erythronotus* are the tone of gray, the extent of rufous on the back, and size. The extent of rufous on the back is somewhat variable in *erythronotus*, so that specimens of *erythronotus* in very fresh plumage and with lesser amount of rufous may be mistaken for the extreme examples of the Lahul population of *tephronotus*. I could not find a single 'intermediate' example among the vast material of the British Museum (including Ticehurst's own collection).

In the Himalayas two races of *L. tephronotus* can be recognized: (A): Dark slate-gray, with rufous confined on the upperside to the rump and the upper tail coverts, and with the wing speculum usually absent, or when present very small. It breeds in Garhwal, Kumaon, Tibet eastward to Yunnan.

(B): Comparatively lighter gray than (A) with rufous extending beyond the rump to the hindmost scapulars; wing speculum almost always present. Breeds in Lahul, Spiti, Ladakh and Suru Valley.

It had been customary to treat (A) and (B) together as *L. tephronotus* or *L. schach tephronotus*, until Whistler and Kinnear (op. cit., pp. 336-337) recognized (B) as a subspecies distinct from (A). They applied *tephronotus* to (B) and revived Hodgson's *nipalensis* for (A). This transfer of names however, is unjustified as Mayr (1947) shows. A careful study of Vigors's description shows that in describing *Collurio erythronotus* immediately preceding *C. tephronotus*, he clearly mentioned the presence of a wing speculum, but did not mention anything about it in connection with *tephronotus*. His *tephronotus*, therefore, can be logically interpreted as a bird *without the wing speculum*. Accordingly I retransfer *tephronotus* to (A). For (B) we have *L. tephronotus lahulensis* Koelz; Hodgson's *journotus*, as suggested by Dunajewski (op. cit., p. 38), cannot be applied, since it is a *nomen nudum*.

*Lanius validirostris* Ogilive-Grant from Luzon, Philippines, should, I believe, be best treated as a race of *L. tephronotus*. It differs from the Indian races in its smaller size and in having practically no rufous on the upperside<sup>1</sup>.

<sup>1</sup> Ripley (1949) commenting on this paper while still in the MS stage, considers these two forms to be specifically distinct. However, his arguments do not appear to me to be convincing.

The Indian subspecies of *Lanius tephronotus* therefore stand as follows:

*Lanius tephronotus tephronotus* (Vigors)

1831. *Collurio tephronotus* Vigors, *Proc. Zool. Soc. London*, p. 43—Himalayas, restricted to Gyantse, Tibet by Baker (*Faun. Brit. India, Birds*, 2 : 297, 1924) corrected as 'Foothills of the Himalayas near Darjeeling, where breeding birds of the Gyantse district may be expected to winter' by Mayr (*J. Bom. Nat. Hist. Soc.*, 47 : 126, 1947).
1837. *Lanius nipalensis* Hodgson, *India Rev.*, 1 : 445—Nepal.
1905. *Lanius lama* Dresser, *Proc. Zool. Soc., London*, p. 55, pl. 5, fig. 1—Isangpo Tal, Tibet.

*Measurements :*

	Wing.	Tail.	Bill.	Wing-Tail Index.	Wing-Bill Index.
25♂♂ :	98-106 100·7	110-123 115·5	21-23 22	111-121 114·3	20·1-23·5 21·9
12♀♀ :	97-105 99·7	109-116 114·8	21-24 22·1	110-115 112·4	20·3-24 22·2
3 unsexed :	103-104·5	121	21-22	116	20·4-21

*Material examined :—*

Tibet : 3 unsexed : Gyantse ; Tsangpo Valley (June, Sept.). United Provinces : 7 ♂♂, 3 ♀♀, 1 unsexed : Kumaon : Shankola, Urting, Gunji, Rahlam, Badang, Nagling, Samandiu ; Gorakhpur dist. : Nichloul (Feb., June, July). Nepal : 2 ♂♂, 1 ♀, 1 unsexed (1 ♂, 1 unsexed juv.) : Nepal Valley : Thankot, Kathmandu, no locality (Mar., April, no date). Sikkim : 5 ♂♂, 6 unsexed (1 ♂, 5 unsexed juv.) : Pembringo Pass, 14,400 ft. ; Guatong, 12,800 ft. ; Keadom, 7000 ft. ; no locality (May, June, July, no date). Bengal : 1 ♂, 4 ♀♀, 2 unsexed (2 unsexed juv. : 2 ♀♀ subad.) : Darjeeling dist. : Kalimpong ; Jalpaiguri dist. : Domohni ; 24-Parganas : Bandipur ; Calcutta ; Dacca dist. : Dacca (Jan., Apr., no date). Assam : 7 ♂♂, 3 ♀♀, 1 unsexed (3 ♂♂ juv.) : Lakhimpur dist. : Dibrugarh, Margherita ; Cachar dist. : Gunjong ; Khasia Hills : Nongpoh (Jan., Mar., Apr., Sept., Oct., Dec.). Burma : 2 ♂♂, 2 ♀♀ (1 ♀ juv.) : Chindwin dist. : Tago Hko ; Myitkyina dist. : Sibiku-Shingaw Road, 700 ft., Gangfang, 5500 ft. (Feb., Dec.). Yunnan : 9 ♂♂, 4 ♀♀ (1 ♂ subad.) : Tengyueh, 5000-6000 ft. ; Yung Chang Fu, 5500 ft. ; Mengtze ; Shweli Valley, 6000-8000 ft. ; Lichiang Range, 8500-10,000 ft. (Jan., Mar., Apr., May, June, Aug., Sept., Oct., Dec.). Szechwan : 2 ♂♂ (1 ♂ juv.) : Tsao Po (15 miles west of Wenchwon) ; Lung-un (Apr., Oct.). Kokonur : 1 unsexed juv. : no locality (no date). ' West China ' : 1 ♀ : no date.

*M o u l t :*

There does not seem to be any prenuptial moult in this form. The complete postnuptial moult generally starts in September and may be prolonged up to the end of December. Postjuvénal moult takes place in April.

*B r e e d i n g :*

Specimens with definite breeding data were collected in June and July in Kumaon. In Tibet it breeds between mid-May and July (Baker, 1933 : pp. 269-270).

*R a n g e :*

Garhwal, Kumaon, Tibet eastward to Yunnan and northward to Szechwan and Kokonur. In winter some may come down to the plains of Uttar Pradesh (United Provinces), Bengal, Assam, Burma and Indo-China.

*Lanius tephronotus lahulensis* Koelz

1933. *Lanius schach tephronotus* (Vig.) Whistler and Kinnear, *J. Bom. Nat. Hist. Soc.*, 36 : 336—Simla-Almora.  
 1950. *Lanius tephronotus lahulensis* Koelz, *Amer. Mus. Nov.*, no. 1452, p. 7—Kolung, Lahul, Punjab.  
 (Type in the American Museum of Natural History).

## Measurements :

	Wing	Tail	Bill	Wing-Tail Index	Wing-Bill Index
17 ♂♂ :	92-102.5	109-120	19.5-23	115-122.5, 127.5	20.8-23.5
	96.9	115.8	21.3	119.5	22
6 ♀♀ :	93-96	105-111	21-23	113-117	21.9-24.7
	94.9	108.8	22	114.3	23.2

## Material examined :

Kashmir : 2 ♂♂ : Northern Kashmir : Suru Valley (Sunku, 9600 ft.) ; Ladakh : Kargil (Paskyum, 9000 ft.) (June, July). Punjab : 17 ♂♂, 8 ♀♀, (2 ♀♀ juv. 1 ♂ subad.) : Lahul : Kolung, Sisoo (10,000-10,500 ft.), Kyelang, Gundla (10,000 ft.), Daskar (10,500 ft.), Tandi ; Spiti ; Shichiling ; Kulu Valley : Kulu (May, June, July, Aug., Sept., Dec.).

## M o u l t :

No moulting specimen examined. One worn adult male collected on September 2 shows no sign of moulting.

## B r e e d i n g :

Breeding specimens were all collected between May 29 and July 26. One female collected on July 6 was incubating, another female collected by the late Hugh Whistler has the following data on the label : 'Breeding over. No eggs in ovary. Incubation patches.'

## R a n g e :

Kargil and Suru Valley in Kashmir, Lahul and Spiti in the Punjab, and possibly also Rupshu and adjacent areas in Ladakh and Tibet. In winter comes down to lower altitudes, such as Kulu.

*Lanius schach* Linné

The rufous-backed and the black-headed shrikes of southeastern Asia should, as Dunjewski (op. cit., pp. 31-32) has already shown, be regarded as members of the same species, since there is complete intergradation between the adjacent forms on the mainland.

The 'rufous'-backed shrikes of India are included in the *erythronotus*-group, and the black-headed shrikes of India, Burma, western China and Siam form the *tricolor*-group.

## ERYTHRONOTUS-group

The shrikes of this group have a gray back with variable amount of rufous. Four races are recognized in this group.

*Lanius schach erythronotus* (Vigors)

1831. *Collurio erythronotus* Vigors, *Proc. Zool. Soc. London*, p. 42—Himalayas, Simla-Almora.  
 1837. *Lanius superciliosus* Swainson, *Classif. Birds*, 2 : 219, nec *Lanius superciliosus* Latham, 1801.

This race is characterized by its gray head and upper back, gradually changing to rufous on the lower back, rump and upper tail coverts, and usually with a large wing speculum. Fully adult females show a faint tinge of rufous even on the upper back.

*Measurements:*

	Wing	Tail	Bill	Wing-Tail Index	Wing-Bill Inex
Afghanistan:					
15 ♂♂:	93-99 96.1	116-124 119.2	20-22.5 20.9	119.5-125 124.1	20.6-23.2 21.8
5 ♀♀:	92-95 93.4	113-116 114.7	20-21.5 20.6	121.5-124 122.5	21.3-23.4 22.1
Northwestern India:					
23 ♂♂:	88-97 92.3	107-125 113.1	19.5-22.5 20.7	117-129 123.9	21.3-23.7 22.4
16 ♀♀:	87-95 89.9	107-118 (5 specimens) 111.7	19.5-23 20.7	119-124 (5 specimens) 121.3	21.7-25.6 23.1
Southern Bombay:					
8 ♂♂:	94-98 95.5	113-127 116.7	19-21.5 20.7	118-130 122.3	19.6-22.4 21.7
9 ♀♀:	88.5-95 91.5	108-118.5 (6 specimens) 110.9	19-21 20	117-125 (6 specimens) 121	20.2-23.4 22

*Material examined:*

Afghanistan: 20 ♂♂, 5 ♀♀, 1 unsexed (3 ♂♂, 1 unsexed juv.): Paghman, Gulbahar, Kabul, Gumandru, Tagau, Ishpi, Khanabad, Tolikhan, Gumbaz, Takia, Puli Komri, Jalalabad (May, June, July, Nov., Dec.). North-West Frontier Province: 1 ♂, 1 ♀: Kurram dist.: Parachinar (May). Kashmir: 2 ♂♂, 7 ♀♀ (1 ♂, 3 ♀♀ juv., 1 ♀ subad.): Gilgit: Gilgit; Baltistan; Shigar; Ladakh: Shyok Valley, Kampuk; West Kashmir: Bandipura (Apr., June, July, Aug., Sept.). Punjab: 21 ♂♂, 16 ♀♀, (1 ♀ subad.): Kulu Valley: Kakinal, Seobagh Nulla, Naggar; Kangra Valley: Kotla, Bhadwar; Patiala: Patiala; Gurudaspur dist.: Pathankot (Jan., Mar., Apr., June, Nov., Dec.). United Provinces: 2 ♀♀: Lucknow (Dec.). Bombay: 7 ♂♂, 10 ♀♀: Surat dist.: Surat; Belgaum dist.: Londa; Dhawar dist.: Hubli (Jan., Feb., Mar.).

*Moult:*

There is a complete postnuptial moult which may start as early as August 19 (1 ♀, Baltistan). Almost all specimens taken in December, January and February are in very fresh plumage; of March and April birds a few are worn.

*Breeding:*

Generally it breeds in May-June. All the fledglings I have seen were collected between mid-July and September.

*Range:*

Afghanistan, North-West Frontier Province, Kashmir and the Punjab Hills. In winter to the plains of India as far south as southern Bombay and Hyderabad. Ticehurst (1926) and Baker (1933: p. 265) doubted Osmaston's (1925, 1927) breeding record of this race in Kargil (Ladakh). However, I examined a subadult female from Shyok Valley, Ladakh, collected by W. Koelz on September 8, and it seems possible that it breeds there.

*Lanius schach jaxartensis* Buturlin

1911. *Lanius erythronotus jaxartensis* Buturlin. *Mess. Orn.*, 2:144—Syr-Daria, Transcaspia.

This Transcaspiian race is said to differ from *L. s. erythronotus* in being larger: wing, 93-110; tail, 110-122. Many ornithologists do not recognize this race.

I have not seen any example of this form.

*Lanius schach kathiawarensis* Koelz

1950. *Lanius schach kathiawarensis* Koelz, *Amer. Mus. Nov.*, No. 1452, p. 7—Jamwala, Junagarh, Kathiawar.  
(Type in the American Museum of Natural History)

This race differs from other races of the *erythronotus*-group in having the gray on the upperside palest, and the rufous less in extent than in *erythronotus* but more than in *caniceps*.

## Measurements:

	Wing	Tail	Bill	Wing-Tail Index	Wing-Bill Index
8 ♂♂:	88-92	110-120	20-21	122·5-133	21·8-23·4
	90·6	115·5	20·4	128·3	22·5
5 ♀♀:	88-90	108-113	20-21	122·5-127	22·7-23·4
	89	111·1	30·5	124·9	23·1

Another female is very large, it measures:

94	126	20·5	134	21·8
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## Material examined:

Sind: 1 ♂, 2 ♀♀ (1 ♂ subad.): Khinjar Lake (Jan., Feb.). Rajputana: 7 ♂♂, 4 ♀♀ (1 ♂ juv.): Mewar: Udaipur, Barapal; Sirohi: Oria, Sirohi (Jan., Apr., Oct., Dec.). Kathiawar: 3 ♂♂, 3 ♀♀ (1 ♀ juv.): Sihor; Junagarh: Jamwala (Jan., Feb.).

## M o u l t:

No moulting specimen examined.

## B r e e d i n g:

No breeding specimen examined. In Sind, Ticehurst (1922) said that they breed between March and June, and that at least three broods are reared in the season.

## R a n g e:

Sind, Rajputana (possibly also Kutch) and Kathiawar.

*Lanius schach caniceps* Blyth

(Type in the Zoological Survey of India)

1846. *Lanius caniceps* Blyth, *J. Asiat. Soc. Bengal*, 15: 502—[ = Madras area, according to Kinnear and Whistler, *J. Bombay. Nat. Hist. Soc.*, 34: 396, 1930].

1878. *Lanius affinis* Legge, *Str. Feath.*, 4:243—Ceylon.

Among the races of the *erythronotus*-group, *caniceps* has the least amount of rufous on the back; it is generally restricted to the rump

and the upper tail coverts, sometimes extending a little anteriorly to about the hindmost scapulars. The tone of gray on the back is more or less similar to that of *erythronotus*.

*Measurements* :-

	Wing	Tail	Bill	Wing-Tail Index	Wing-Bill Index
10 ♂♂ :	88-93 90·9	109-125 117·1	20-22 21·1	124-132 128·5	22·2-25 23·3
6 ♀♀ :	86-93 89·8	110-119 115	20-22 20·9	122·5-134 129·8	21·5-25·1 23·2

*Material examined* :

Madras : 10 ♂♂, 5 ♀♀, 1 unsexed : Bellary district : Hospet ; Cuddapah dist. . Sidhout, Kodur; South Arcot dist. : Cuddalore; Malabar dist. : Nilambur; Nilgiris : Ootacamund; Madura dist. : Palni Hills (Kodaikanal) (Feb., Mar., Oct.,); Mysore : 1 ♂, 1 unsexed; Mysore dist. ; Bangalore dist. : Satnur (Nov., Dec.). Ceylon : 2 ♂♂, 1 ♀ : Aripo (Feb., Mar., Nov.)

*M o u l t* :

One specimen collected in Mysore district on November 20 has the body moult almost finished; wings and tail still in moult.

*B r e e d i n g* :

The only specimens with definite breeding data I examined are from the Nilgiris, February 16, 17, Nilambur (Malabar), March 3, and Kodaikanal (Palni Hills), March 10. Baker (1924 : p. 297) gives February and March as the breeding season in Travancore, and May to July in 'Deccan.' In Ceylon, according to Whistler (1944), it breeds between February and June.

*R a n g e* :

Northwestern Ceylon, southern India as far north as Bellary in the centre and Cuddapah on the east, and on the west side northward to Malabar.

TRICOLOR-group

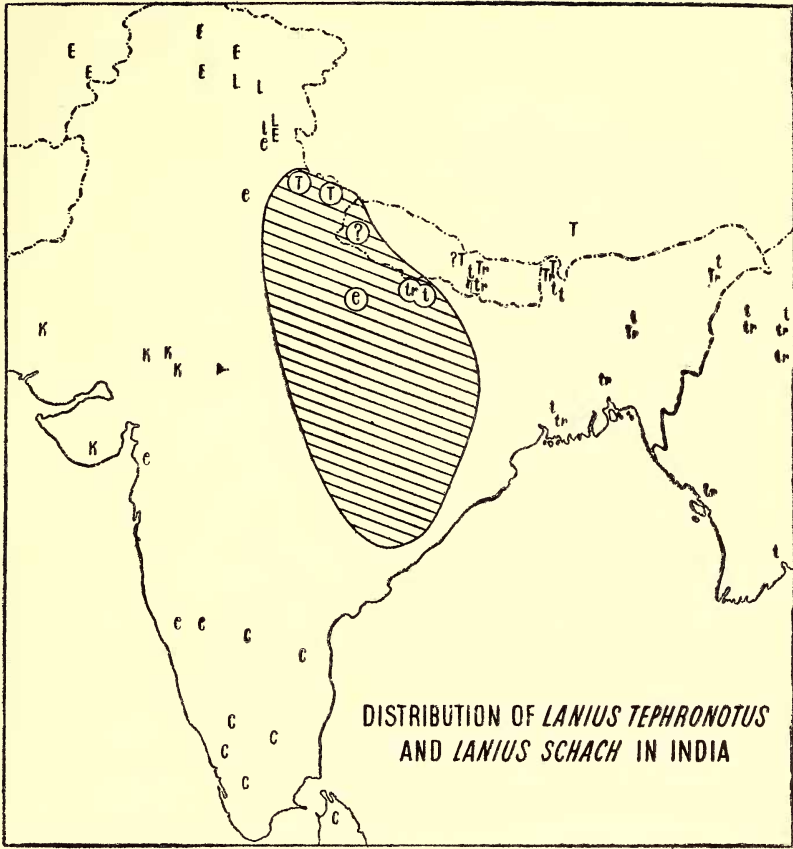
The shrikes of this group are characterized by a black head, chestnut back, and long tail.

Two subspecies are recognized in this group :

*Lanius schach longicaudatus* Ogilvie-Grant

1902. *Lanius nigriceps* subsp. *longicaudatus* Ogilvie-Grant, *Nov. Zool.*, 9 480—Siam, Bangkok.
1940. *Lanius nasutus schomburgki* Kinnear, *Ibis*, (14) 4 : 728-729. New name for *Lanius nigriceps longicaudatus* Ogilvie-Grant—not admissible for Gadow's (*Cat. Birds Brit. Mus.*, 13 : 262) citation of *longicaudatus* as a synonym of *Lanius schach* being due to misidentification, does not invalidate the further use of *longicaudatus* Ogilvie-Grant.

This race differs from the allied *tricolor* by its very long tail : 130-155, against 115-135.



<p><b>T</b>, <i>Lanius tephronotus tephronotus</i></p> <p><b>t</b>, " " " (winter)</p> <p><b>L</b>, " " <i>lahulensis</i></p> <p><b>l</b>, " " " (winter)</p> <p><b>E</b>, " <i>schach erythronotus</i></p> <p><b>e</b>, " " " (winter)</p>	<p><b>K</b>, <i>Lanius schach kathiawarensis</i></p> <p><b>C</b>, " " <i>caniceps</i></p> <p><b>Tr</b>, " " <i>tricolor</i></p> <p><b>tr</b>, " " " (winter)</p> <p>Zone of hybridization between <i>L. s. erythronotus</i> and <i>L. s. tricolor</i> is shaded.</p>
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Measurements:

	Wing	Tail	Bill	Wing-Tail Index	Wing-Bill Index
2 ♂♂:	96-98	145-156	22-23	151-159	22·9-23·5
2 ♀♀:	96-99	————	22·5-23	————	23·3-23·4

Material examined:

Siam: 2 ♂♂, 2 ♀♀: Bangkok, Rat Buri (Jan., Apr., June)

Range:

From Amherst in Tenasserim (Burma) southward to southwest and peninsular Siam.

*Lanius schach tricolor* (Hodgson)

1837. *Collurio tricolor* Hodgson, *India Rev.*, 1: 446—Nepal, hereby restricted to Kathmandu, Nepal Valley.

This is the shorter-tailed black-headed shrike. The chestnut on the back is generally deeper and the wing speculum smaller than in *longicaudatus*.

Measurements:

Uttar Pradesh and Nepal:

	Wing	Tail	Bill	Wing-Tail Index	Wing-Bill Index
9 ♂♂:	93-98	115-127	20·5-23	120·5-131	21·8-23·7
	95·8	120·7	21·7	127·3	22·8
5 ♀♀:	93-96	112-123	20-22	117-131	21·5-22·9
	94·2	119	21·1	126·3	22·4
1 unsexed: 96	—	—	22·5	—	23·4

Sikkim, Bengal, east to Yunnan:

8 ♂♂:	94-101	124-135	21-22·5	126-135	21·5-23·2
	97·4	129	21·8	131·1	22·3
6 ♀♀:	93·5-96	119-126	20-23	125-132	22·9-24·7
	94·9	122	21·8	129·3	23·7
3 unsexed: 93-97		120-127	22-23·5	126-132	22·7-24·5

Material examined:

United Provinces: 2 ♂♂: Gorakhpur dist.: Nichlaur (Feb.). Nepal: 8 ♂♂, 7 ♀♀, 1 unsexed: Nepal Valley: Thankot (nr. Kathmandu); Lower Hills: Bhimphedi (Mar., Apr.). Sikkim: 2 unsexed: Teesta Valley, 4500-5000 ft. (Dec.). Bengal: 2 ♀♀, 1 unsexed: Darjeeling dist.: Darjeeling; Dacca dist.: Dacca (Jan., no date). Assam: 6 ♂♂, 4 ♂♂, 1 unsexed (2 ♂♂, 2 ♀♀ juv.): Lakhimpur dist., Dibrugarh, Margherita; Khasia Hills: Barapani (May, June, July, Aug., no date).

Moult:

Several specimens in various stages of postnuptial moult, which is complete, have been examined, the earliest taken on July 26 at Dibrugarh (Assam), and the latest on December 24 at Shweli Valley (Yunnan). The Dibrugarh bird has its body moult finished but the wing and the tail are still old and worn. The November and December specimens have their body and wing moult finished but the tail is still in moult. All birds taken in February, March and April are in very fresh plumage. Whether they have any spring moult is uncertain, as I have not seen any specimen actually moulting.

## B r e e d i n g :

It generally breeds in April-May, but I saw it breeding in Nepal Valley as early as March 24, and Scully (1879) took eggs on June 14.

## R a n g e :

Mountains of Nepal eastward through northern Burma to Yunnan. In winter some birds come down to the plains of the Uttar Pradesh, Nepal, Bihar, Bengal, Burma, Siam and Indo-China.

HYBRIDIZATION BETWEEN *Lanius schach tricolor*  
AND *Lanius schach erythronotus*

As early as 1846, Blyth (*J. Asiat. Soc. Bengal*, 15: 303) mentioned a specimen of shrike collected at Benares by Lord Hay as having 'the cap mingled fuscous and ashy, and the forehead above deep black. . .'. He considered it to be a hybrid between *erythronotus* and *tricolor* (olim *nigriceps*). Then again, Ogilvie-Grant (*Nov. Zool.*, 9: 479, 1902) said:

'The amount of grey on the back [of *tricolor*] appears to be due to locality; for we find all the fully adult birds from Raipur, in the Central Provinces, and from Mirzapur, in the North-Western Provinces, with the grey on the upper back much developed and of a pale colour, indicating, in our opinion, an approach towards *L. erythronotus*. From North-Western India we have also a number of birds which are obviously intermediate between *L. nigriceps* [= present *tricolor*] and *L. erythronotus*, and may be considered by some as hybrids.'

Dunajewski (*op.cit.*, pp. 41-42) discussed this hybridization between *erythronotus* and *tricolor*, giving examples of the same material as Ogilvie-Grant's. In the meantime, Whistler and Kinnear (1933: p. 335), finding, some breeding specimens with black head and gray back from the northern part of the Eastern Ghats, restricted Franklin's *nigriceps* for the birds of the central part of the Indian peninsula, reviving Hodgson's *tricolor* for the birds of the northern breeding range.

The large material, I have been able to examine, from Garhwal, Kumaon, plains of Uttar Pradesh (the United Provinces), Bihar and Madhya Pradesh (Central Provinces), clearly shows that there is a complete intergradation between *tricolor* and *erythronotus* in this vast area. Intergradation practically starts at Nepal Valley. I examined 16 specimens from the Nepal Valley and the lower hills due south of the Valley; only one of them has a gray head with a small amount of black, and the other birds are all fully blackheaded, but in size these birds are slightly smaller than more eastern birds. Unfortunately, the type locality of *tricolor* is Nepal. In this hybridizing zone (see map) the breeding birds show all shades from gray to black on the head, from pale rufous to chestnut on the back, and have short to long tail. A perusal of the following Hybrid Index, made only from examples collected in the breeding season, will make the issue quite clear.

## HYBRID INDEX

A, colour of the head: black as in *tricolor*=40; gray as in *erythronotus*=0

B, gray on back: inconspicuous band as in *tricolor*=20; extensive as in *erythronotus*=0.

C, red on back: chestnut as in *tricolor*=10; rufous as in *erythronotus*=0.

D, length of tail: 133-135mm.=10; below 106 mm.=0.

E, wing-tail index: 135=10; below 117=0.

F, distance between the tips of the outermost and the innermost rectrices: 49-50mm.=10; below 31mm.=0.

For several specimens the value of certain characters could not be ascertained owing to specimens being in imperfect condition. For them the totals are, however, brought upto 100, and are placed in parentheses.

LOCALITY	A	B	C	D	E	F	TOTAL	
<b>Males:</b>								
Afghanistan, Paghman	...	0	0	0	4	5	5	14
Paghman	...	0	0	0	6	5	7	18
Gulbahar	...	0	0	0	4	2	5	11
Kabul	...	0	0	0	7	5	6	18
Gumandru	...	0	0	0	5	5	5	15
"	...	0	0	0	6	6	5	17
"	...	0	0	0	5	4	—	(10)
Tagau	...	0	0	0	4	3	6	13
"	...	0	0	0	5	3	4	12
Ishpi	...	0	0	0	5	5	4	14
Kashmir, Gilgit	...	0	0	4	1	1	1	7
North-West Frontier Prov., Parachinar	...	0	0	1	—	—	—	(1)
Punjab, Kulu, Kulu	...	0	0	2	—	—	—	(3)
Kangra, Bhadwar	...	0	0	0	3	2	4	9
"	...	0	2	0	1	1	2	6
"	...	0	0	0	2	5	3	10
"	...	0	0	3	1	2	1	7
"	...	0	0	0	2	2	3	7
<b>Uttar Pradesh—</b>								
(United Provinces) Garhwal, Deopal	...	0	0	3	3	4	6	16
Kumaon, Bhim Tal	...	0	0	4	—	—	—	(6)
Someshwar	...	2	0	0	3	4	7	16
"	...	8	0	3	6	7	7	31
Bageshwar	...	0	0	7	6	8	6	27
Patori	...	16	0	5	—	—	—	(30)
"	...	38	10	3	5	6	—	(69)
Bui	...	10	0	2	5	—	5	(24)
Bona	...	32	10	10	6	7	—	(72)
Budi	...	14	0	5	—	—	—	(27)
Sirka	...	24	10	8	—	—	—	(60)
Bihar, Palamau, Mahammadganj	...	40	12	8	—	—	—	(86)
"	...	36	0	1	—	—	—	(53)
"	...	40	5	1	—	—	—	(66)
"	...	40	5	4	—	—	—	(70)
<b>Madhya Pradesh—</b>								
(Central Provinces) Mandla, Bichhia	...	40	10	2	—	—	—	(74)
"	...	17	10	4	—	—	—	(44)
"	...	40	0	8	3	6	—	(63)
"	...	40	10	6	4	7	7	74
"	...	40	5	5	—	—	—	(71)
Belwani-Kisli	...	1	0	—	—	—	—	(1)
"	...	5	5	6	—	—	—	(23)